

REMARKS

I. Introduction

Claims 1 to 29 are currently pending in this application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 1, 2 and 5 to 8 Under 35 U.S.C. § 103(a)

Claims 1, 2 and 5 to 8 were rejected under 35 U.S.C. § 103(a) as unpatentable over the alleged admitted prior art, U.S. Patent No. 4,285,452 ("Reba et al.") and U.S. Patent No. 5,762,857 ("Weng et al."). Applicants respectfully submit that claims 1, 2 and 5 to 8 are patentable for at least the following reasons.

As an initial matter, Applicants respectfully submit that claims 5 and 6, previously indicated as allowable, have been amended to ultimately depend from allowed claim 4. Therefore, withdrawal of the rejection and allowance of claims 5 and 6 are respectfully requested.

Claim 1 relates to a method for producing a spunbonded nonwoven fabric by extruding a linear sheet of filaments arranged side by side in parallel, in the form of a curtain from a plurality of spinning capillaries. Claim 1 recites aerodynamical pulling off and drawing of a filament sheet (8) which one of emerges from a drawing duct channel (12) and is pulled off a spool. Claim 1 further recites that the linear sheet of filaments is arranged laterally crosswise to a production direction. Claim 1 has been amended to recite that the filament sheet is moved laterally crosswise to the production direction by an air flow from a blowing duct having periodically changing directions, the air flow being oriented alternately at an angle toward the filament sheet (8) as viewed in the horizontal plane. Claim 1 has further been amended to recite that the blowing duct is arranged beneath the drawing duct channel and at least one of in front of and behind the filament sheet, the blowing duct having air-outlet nozzles which are aligned at an angle toward the filament sheet as viewed in the horizontal plane. No new matter has been added. See, for example, original claim 9.

Claim 2 has been placed in independent form and recites, *inter alia*, that air pauses exist between the air flows.

Reba et al. purportedly relate to a system and method for dispersing filaments. Filaments 5 are stated to be drawn through a high velocity jet system and exit the system through an opening in discharge means 2. See col. 3, lines 48 to 50. Discharge means 2 is stated to cause dispersion of filaments 5 in a plane parallel to opposed Coanda surfaces 3. See col. 3, lines 60 to 62. A Coanda effect is stated to be applied to the filaments 5 by using a pulsating fluid as the filaments 5 pass within region 8 so as to effect filament oscillation in a perpendicular plane. See col. 4, lines 17 to 20. Fluid is stated to be supplied from means 4 and nozzle 4a so as to oscillate the filaments in an alternating mode with respect to the Coanda surfaces 3. See col. 4, lines 47 to 50.

Weng et al. purportedly relate to a method for producing a nonwoven web using pulsed electrostatic charge. Filaments 16 used to produce the nonwoven web are stated to be oscillated by an electric wind produced by an electrode bar 22. See col. 4, lines 11 to 16. A substantial amount of the movement caused by the electric wind is stated to be in the cross machine direction. See col. 4, lines 16 to 17. The filaments 16 are stated to be provided with a charge so as to assure repulsion, and thus, separation of the filaments 16. See col. 1, line 17, col. 2, lines 12 to 14 and col. 4, lines 6 to 10.

Nowhere, however, does the combination of the alleged "admitted prior art," Reba et al. and Weng et al. disclose, or even suggest, a blowing duct having air-outlet nozzles which are aligned at an angle toward the filament sheet as viewed in the horizontal plane. Weng et al. use an electric wind to oscillate the filaments not an air jet. Further, the means 4 in Reba et al. directs fluid through a single nozzle 4a on both sides of the filaments, which is directed in-line with the web-forming surface 6, and thus, is not aligned at an angle toward the filament sheet in the horizontal plane. Therefore, the combination of the alleged "admitted prior art," Reba et al. and Weng et al. does not disclose all of the limitations of amended claim 1.

Further, nowhere does the combination of the alleged "admitted prior art," Reba et al. and Weng et al. disclose, or even suggest, that air pauses exist between the air flows, as recited in claim 2. The pulse frequency in Weng et al. is stated to be from about .5Hz to 100Hz. However, Weng et al. do not disclose, or even suggest, turning off the electric field so as to allow the filaments to align vertically between oscillations. Turning off the electric field to allow the filaments to vertically align is inconsistent with the method of operation of the Weng et al. system because the electric field is necessary at

all times to prevent aggregation of the filaments by application of a charge. Therefore, the combination of the alleged "admitted prior art," Reba et al. and Weng et al. does not disclose all of the limitations of amended claim 2.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). As stated above, the combination of the alleged "admitted prior art," Reba et al. and Weng et al. does not disclose, or even suggest, a blowing duct having air-outlet nozzles which are aligned at an angle toward the filament sheet as viewed in the horizontal plane, as recited in amended claim 1, or that air pauses exist between the air flows, as recited in claim 2. It is therefore respectfully submitted that the combination of the "admitted prior art," Reba et al. and Weng et al. does not render obvious claims 1 and 2.

The Final Office Action admits that Weng et al. do not disclose the use of air jets but alleges that it would have been obvious to redirect and oscillate the filaments in the cross machine direction in light of Weng et al. Weng et al. use an electric field for strand repulsion and separation and also to oscillate the strands crosswise to production. Applicants respectfully submit that use of an electric field to oscillate filaments crosswise to production does not render it obvious to do so with air jets, let alone does it render obvious the specific blower arrangement, as recited in claim 1. When using an electric field the filaments become repulsive, and therefore, are less likely to aggregate. This is not the case with an air jet system, which is prone to aggregation. A single powerful jet, for example, arranged to the side and in-line with the crosswise row of filaments might cause the filaments to shift crosswise and aggregate. Claim 1, as amended, recites a specific blowing arrangement, i.e., a blowing duct having air-outlet

nozzles which are aligned at an angle toward the filament sheet as viewed in the horizontal plane. None of the references alone or taken in combination disclose, or even suggest, such a blower arrangement.

Therefore, for all the foregoing reasons, withdrawal of the 35 U.S.C. §103 (a) rejection and allowance of claim 1 are respectfully requested.

As for claims 3, 7 and 8, which depend from claim 1 and therefore include all of the limitations of claim 1, Applicants submit that these claims are patentable for at least the same reasons provided above in support of claim 1. *In re Fine, supra* (any dependent claim depending from a non-obvious independent claim is non-obvious). Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection and allowance of claims 3, 7 and 8 are respectfully requested.

In regard to claim 8 Applicants respectfully submit the following additional arguments in support of patentability. Nowhere does the combination of the alleged "admitted prior art," Reba et al. and Weng et al. disclose, or even suggest, that subsequent to the air-flow movement, the filament sheet (8) is additionally deflected by periodically moving flow-guide surfaces, as recited in claim 8. In Reba et al. the Coanda surfaces are used to deflect the filaments 5 in the production direction. Reba et al. do not disclose an additional device for deflecting the filaments 5. Therefore, for at least these additional reasons, withdrawal of the 35 U.S.C. §103(a) rejection and allowance of claim 8 are respectfully requested.

III. Rejection of Claim 3 Under 35 U.S.C. § 103 (a)

Claim 3 was rejected under 35 U.S.C. § 103 (a) as unpatentable over the alleged "admitted prior art," Reba et al., Weng et al. and DE 2114854 ("DE '854"). Applicants respectfully submit that claim 3 is patentable over the cited art for the following reasons.

The combination of the alleged "admitted prior art," Reba et al., Weng et al. and DE '854 does not disclose, or even suggest, a blowing duct arranged beneath a drawing duct channel and at least one of in front of and behind the filament sheet having air-outlet nozzles which are aligned at an angle toward the filament sheet as viewed in the horizontal plane, as recited in claim 1, from which claim 3 depends.

DE '854 does not remedy the above detailed deficiencies of Reba et al. and Weng et al. DE '854 relates to a method and device for producing a plastic

nonwoven fabric. The filament sheet in DE '854 is arranged in line with the production direction, as opposed to laterally crosswise to a production direction, as recited in claim 1, and exhaust units 11 and 12 are shown in Figure 1 to be on either side of the filament sheet as opposed to one of in front of and behind, as recited in claim 1. Therefore, Applicants respectfully submit that the combination of the alleged "admitted prior art," Reba et al., Weng et al. and DE '854 does not render obvious claim 3.

IV. Allowable Subject Matter

Applicants note with appreciation the indication of allowable subject matter contained in claims 5 and 6. In this regard, the Examiner will note that each of claims 5 and 6 has been rewritten herein so as to ultimately depend from allowed claim 4. It is therefore respectfully submitted that claims 5 and 6 are in condition for immediate allowance.

V. Allowed Claims

Applicants thank the Examiner for allowance of claim 4.

VI. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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